MALTA.

IMPERIAL MYCOLOGICAL INSTITUTE
28 SEPT. 1931

ANNUAL REPORT

ON THE WORKING OF THE

DEPARTMENT OF AGRICULTURE

DURING

1930-31.

Published by Authority.

MALTA
GOVERNMENT PRINTING OFFICE.
1931.

MALTA.

Report by the Superintendent of Agriculture for 1930-31.

OFFICE OF AGRICULTURE—MALTA,
Valletta, 29th July, 1931.

Sir,

I have the honour to submit the subjoined report on the Agriculture in the Maltese Islands during the agricultural year commencing 1st September, 1930, and on the working of the Department of Agriculture during the financial year 1930-31.

"A" AGRICULTURE.

2. The first shower of about half an inch fell on the 1st September, but the first useful rains followed on the 14th of that month, on which day there was a rainfall of 2.96 inches, which reached practically all over both Islands. There were also subsequent slight showers on the following days, so that the germination of sulla, barley, etc. was perfectly normal. The germination of unirrigated winter potatoes followed soon after, and therefore, the season may be said to have been anticipated by a fortnight. The weather became again warm and dry, following the usual course, until the 15th October, and then abundant showers amounting to over 3 inches, fell between the 15th and 20th of that month. This second rainfall was not evenly distributed, so that in the western district unirrigated potatoes had hardly germinated by the close of that month. Stormy weather followed from the 13th to the 15th November when some rain also fell. A prolonged spell of fine weather with southern winds, continued up to the 8th December, on which day there was a rainfall of 1½ inches. Showery weather continued throughout January and up to the third week of February, the soil remaining continually in a wet condition for over 2½ months, rendering cultural work impracticable and causing much delay in most agricultural operations.

3. A furious westerly gale of extraordinary violence took place on the 21st-23rd February, particularly on the night between the 21st and 22nd, which threw down a large number of trees in both Islands, and caused considerable damage to growing crops, particularly to early spring potatoes, beans and peas. Another north-westerly gale took place on the 1st and 2nd March, but fortunately this was less violent and of shorter duration. A prolonged spell of fine weather followed, but the ground had become too caked and fissured to permit the satisfactory development of most growing crops. This long spell of dry weather came to an end on the 10th and 11th May, when with a northerly wind, good showers fell on both Islands, by which most crops benefited more or less. In consequence of this late rain the soil will continue moist for a considerable part of summer, and will permit an extensive cultivation of dry-farmed summer crops, such as cotton, maize, sesame, tomatoes, melons and dry-farmed vegetables such as marrows, cauliflowers and cabbages. The temperature was mild throughout the winter and no cases of injury from frost was reported anywhere, as has too frequently happened in past years.

4. On the whole the results of the agricultural year may be described as comparatively poor, and would have been little short of disastrous but for the rather belated, but very beneficial rain in May. In fact with the exception of sulla and forages, generally, no crop was wholly satisfactory. The prices of vegetables and practically of all farm produce were excessively low, which, added to the high rents and high cost of labour, have brought about a formidable crisis in our agricultural industries, resulting in much distress, and compelling many farmers to run high into debt.

5. Wheat was grown on an estimated area of 8,500 acres in Malta and 1,102 acres in Gozo, a total of 9,602 acres as against last year's total of 9,166 acres. This

His Honour,
The Lieutenant-Governor.

considerable increase is due mostly to yearly fluctuations connected with crop rotation, and the increase was much more marked in Gozo than in Malta. The total production is estimated at 34,641 quarters, as against last year's production of 37,814 quarters. This year's average production per acre is therefore below that of last year, being at the rate of 29.27 bushels per acre, as against last year's 33 bushels. Although rust and other fungoid diseases were as little noticeable as last year, and although the cloudy weather in the second and third decade of May markedly assisted the formation of a plump and heavy grain, the too persistent rain in winter and the shortage of rain in early spring prevented the wheat-plant from tillering properly, and the development of the ear both in number and in size was below the normal. The same sorts of wheat were mostly grown, viz : the red hard wheat on red soils, and the yellow hard wheat on clayey and whitish soils. These two types of hard wheat have been cultivated in these Islands for centuries. They are fully acclimatized and will not be easily superseded by other sorts. The Susa or Medeah wheat, or Trimenia wheat of Sicily originally distributed by the Department of Agriculture is also being more largely cultivated in both Islands, and I am strongly of opinion that so far the two best sorts of hard wheat for growing in these Islands are the Susa or Trimenia wheat (sometimes called Macaroni wheat in America) and the Yellow Hard Wheat, both of which are very rich in gluten, and produce paste of excellent quality and beautiful colour. The Australian Dreadnought wheat, also originally distributed by this Department, and like the two preceding sorts exclusively grown from local grain, is also being extensively sown, owing to its high production, resistance to drought and disease, and to its heavy grain; but although also of excellent quality for the manufacture of paste, the colour is not so attractive, but like the Red Hard Wheat would do for the manufacture of inferior grades of paste; it is less attractive in appearance but of high nutritious value. The cultivation of other sorts of wheat is also being attempted here and there, particularly the Red Fife or Manitoba Wheat and the Australian Victoria Wheat being sorts suitable for bread-making.

6. The area under barley was estimated at 3,613 acres in Malta and only 65 acres in Gozo, a total of 3,678 acres. On the other hand, the area under meslin or mischiato was estimated at only 30 acres in Malta (West District), and at 3,064 acres in Gozo, a total of 3,094 acres, the total for barley and meslin amounting to 6,762 acres. Last year's total acreage amounted to 6,677, with a very similar distribution as to the acreage of barley and meslin. The growing of meslin is very generally despised by the Maltese farmer as dirty farming, but as the production per acre is always considerably more than that of wheat and only slightly less than that of barley, the Gozitan farmer finds it to his advantage to get the larger crop which he requires chiefly for the fattening of his pigs and the rearing of poultry and other animals. Besides, he also uses the straw of meslin, finely chopped and crushed on the threshing floor, as fodder for his animals in the same way as wheat straw. This year's production of barley is estimated at 18,528 quarters in Malta and only 353 quarters in Gozo; and that of meslin as 255 quarters in Malta, and at 15,115 quarters in Gozo; a total of 34,251 quarters, as compared with last year's total of 34,358 quarters.

7. The total area under wheat and barley in the Maltese Islands was, therefore, estimated at 16,364 acres, as against last year's total of 15,843 acres, which is indeed a very relevant figure when one considers that the total cultivable area amounts to only 43,024 acres. Fortunately, manure, like most other produce of the farm was cheap and abundant, and the land was generally adequately manured to keep up fertility, and compensate the drain of fertilizing material caused by the excessive acreage of cereals.

8. Green barley or "ferrana", used as forage in a green state, is accounted for under forages. Maize is grown mostly as a catch crop in early summer, but owing to the dry spring of 1930 the ground was mostly unsuitable for this dry-farmed crop, and, therefore, the area under maize amounted to only 262 acres, with a production of 1,080 quarters, the corresponding figures for the preceding year being respectively 497 acres and 1,374 quarters. Some maize is also grown under irrigation and used mostly as green forage during summer. The average wholesale prices of wheat, barley, meslin and maize being respectively £2. 1. 8., £1. 0. 0, £1. 10. 0, £2. 5. 0,

per quarter ; the total wholesale value of this year's production of these cereals amounted to £116,434. 17. 0 besides the value of straw.

9. Beans were grown on 1,193 acres showing a heavy fall as compared with last year's 1,643 acres. The production is estimated at 4,764 quarters as against last year's 6,948 quarters. However, this fall in the acreage under beans was more fortunate than otherwise, the crop of beans having suffered more than any other on account of the persistent rain which prevented all proper tillage during the growth, and also by the severe gale above mentioned, which in some districts, particularly in the western part of Gozo, and in the western district of Malta, injured or destroyed the plants, just coming to bloom. Later on, the broom-rape (orobanche speciosa) and the Bean-Aphis (Aphis rumicis) were also prevalent over an extensive area, although the Bean rust (Uromyces Fabae) was far less noticeable than usual. This deficiency in the bean crop was largely compensated by the many sowings of late beans, under irrigation. The produce of these late beans finds its way to the greengrocer as a vegetable, and is accounted for under vegetables. Late beans are not less liable than the main crop to the attacks of the Bean-Aphis, but on account of the late sowing, they are invariably beyond reach of the ravages of broom-rape.

10. The area under winter potatoes, including the early winter crop sown under irrigation in mid-summer, was estimated at 2,725 acres, as against last year's 3,174 acres, and the production amounted to 10,353 tons against the preceding year's 11,407 tons. Owing to the early rains the germination and growth on unirrigated land which constitutes the bulk of the crop, was very satisfactory, and although the subsequent wet weather considerably prevented or hampered tillage, the production was on the whole very satisfactory. It was unfortunate that in some places late blight made its appearance in the second week of December so that a proportion of the larger tubers became infected and rolled off when the crop was lifted and stored, thus appreciably reducing the yield. The prices of winter potatoes at first were very satisfactory, reaching 17s. or more per cantar, but after a few days went down to 10s. and afterwards to 5s. per cantar, remaining at this level for a long stretch. Prices became more lively when the export season commenced, and gradually rose up to 12s. 6d. per cantar.

11. Spring and summer potatoes were grown on an area estimated at 3,934 acres, as against last year's 4,207 acres. Seed potatoes were scarce at times, owing to the reluctance of importers to import heavily in view of the inability of the distressed farmers to make heavy purchases, and the persistent rain during the sowing season was also a great hindrance. However, the original deficiency of imports of seed, was partly compensated by greatly increased sowings of local seed of White Elephant or White Hebron.

12. In terms of clause 15 of the new regulations issued under Government Notice No. 351 of the 20th September, 1930, potatoes imported between the 15th November and the 15th of the following March are now considered as seed potatoes, and must comply with certain conditions as set for in clause 16 of the said regulations. Accordingly all imports of seed potatoes were of uniform quality, and free from disease, so that neither the importers nor the farmers had to deplore losses on account of diseased or rotten seed. The imports of seed potatoes amounted to a total of 3,363½ tons or 33,638 bags as against last year's imports of 49,140 bags. This year's imports consisted of 27,571 bags Champions, 4,211 Northern Invincible, 1,300 bags Up-to-Date imported from Northern Ireland, and 556 bags of Moravian potatoes imported from Trieste, these last arriving late in the season, that is on the 17th March. Practically the whole of the imported seed potatoes were sown, the quantity which was disposed of for table use being quite insignificant. Moreover, as above mentioned, in the Western District in Malta and also in certain localities of the Central District, there were important sowings of White Hebron or White Elephant, farmers reserving the "seed" tubers of the winter crop for this purpose.

13. The crop of spring and summer potatoes is estimated at a total of 19,535 tons, as against last year's 17,358 tons, and thus the decrease in acreage was more than compensated by an increased production especially in the case of the main and late crops. There was no sign of potato-blight or other disease in any part of the Island, but many farmers took good care to spray their potato fields, in due time,

as a preventive against possible infection. Unfortunately the prices which at first ranged from 15s. to 20s. per cantar soon came down to 11s. 8d. or 10s. due to competitive production in Southern Spain and Italy. The production of both winter and spring potatoes, during the past year, is, therefore, estimated at a total of 29,888 tons with a wholesale value of £222,539. 4. 0, paid directly to the growers, besides affording profitable employment to traders, brokers, cartmen, etc.

14. The total area under onions was estimated at 1,071 acres as against last year's 1,160 acres. The yield is estimated at 7,736 tons as compared with last year's 9,458 tons. The year was not favourable for the cultivation of onions, although from the sowings of seed-beds it was obvious that the growers were preparing for a larger acreage than usual. In many places seed-beds were entirely killed and wiped off by the persistent rains of early autumn, or only a few stunted plants were left available to be planted out. In those places where the growers had made the seed-beds on well drained land, or on raised or sloping ground, the plants were better able to resist the inclement weather, and this was particularly the case in the south-western part of the Island where the long keeping onions are chiefly grown. There was a brisk export of onions during June, and prices ranged from 5s. to 6s. or more per cantar, which allowed a fair margin of profit to the producer. The carelessness, as well as the fraudulent practices on the part of certain dealers and brokers of potatoes for export, had resulted in lively complaints on the part of the dealers in the importing countries, with consequent too frequent losses to our exporters, and our export trade in this produce was threatened with extinction. To avert this danger to our agriculture, Regulations were issued under the authority of Ordinance No. XIV of 1930, subjecting the export of potatoes to examination by this Department, with a view to ensuring a proper standard of grading and sorting. This service was placed under the charge of Dr. A. Azzopardi, A. & C.E., with two inspectors, and during the period between the 9th December, 1930, and the 13th July, 1931, 110,185 packages of potatoes were inspected of which 4,289 were refused export as unfit; those passed as fit for export were duly sealed and stamped. This measure was hailed with delight by both foreign importers and local exporters, and the immediate result was a progressive improvement in prices and firmer trade, which is also the best form of encouragement for our growers.

15. Cumin was grown on an area of 2,247 acres, showing a notable increase on last year's 1913 acres. The production is estimated at 10,880 cwts., as against last year's production of 12,566 cwts. Again this year's increased acreage is due to a further improvement in the prices of cumin during the past year. There have been no complaints of losses from insect pests and fungous disease, the crop being everywhere quite healthy, though poor in quantity and the perfect production of the seed being aided by the fairly moist condition of the soil, and the favourable weather at seeding time. Owing to the lack of sufficient rain in early spring, the plants remained small, hence the reduced production. Moreover the crop was not so clean from weeds as it was desirable to secure a commercially clean produce, and, apart from other considerations, this want of proper attention may affect the selling value.

16. The area under cotton, in the spring and summer of 1930, amounted to only 499 acres, Gozo's share in this cultivation amounting to 271 acres. This acreage represents a further drop on last year's 640 acres. Again this reduction is due chiefly to the shortage of rain in the spring of 1929 and partly also to the low prices. The production was estimated at 117,250 lbs. of lint, as against the preceding year's production of 151,588 lbs. The plants were not affected by disease; the usual foot-rot fungus Neocosmospora (Fusarium) vasinfecta, being nowhere present, and cotton-Aphis appearing only sporadically in the western part of Gozo. The prices have remained as low as before, but it is expected that the late rains of this spring will induce growers to extend the cotton acreage for the current year.

17. This year was in no way less favourable than last year for the production of good crops of forages of excellent quality and very free from disease. Nothwithstanding the continuous rain, Sulla made exceedingly fine growth with slender stems and abundant healthy foliage. Its harvesting and drying were also carried out throughout under very favourable weather conditions. Caterpillar plant and vetches were also quite healthy, and the growth of vetches was further assisted by the late spring rain. Among vetches, White Vetch or Chickling Vetch (Lathyrus

Ochrus) predominated as usual, being popular with most growers and yielding good returns, both in seed and foliage, even on the worst soils.

18. The total area under forages amounted to 11,896 acres, which is very nearly the same as last year's 11,904 acres, although the distribution in the various districts is different. The estimated production amounted to 770,747 *some* as against last year's 751,507 *some* or loads of ten bundles. This year's figures include Sulla with an area of 7,556 acres and an estimated productionof 374,940 *some;* vetches with 2,217 acres and an estimated production of 132,257 *some;* caterpillar-plant with 1,657 acres and an estimated production of 124,035 *some;* and green-barley with 536 acres and an estimated production of 39,515 *some.*

19. Vegetables were grown on an area of 1,890 acres, as against 1,779 acres in the preceding year, and the production is estimated at a total of 133,265 cwts. as against last year's production of 136,336 cwts. Certain vegetables were excessively cheap, cauliflowers maturing in November-December, often finding no market. Late cauliflowers and cabbages fetched better prices, and globe-artichokes were comparatively scarce. There was also a glut of pumpkins and gourds throughout the year, and marrows which were dear early in the season, became too cheap to leave any margin of profit. Carrots, beets, lettuces, endives, etc., were cheap throughout the rainy season and in early spring. Kohl-rabi were almost unsaleable except early in the season. Peas were scarce throughout the season, the north-westerly gale of February having destroyed most ofthe plants in the western district, where this vegetable is chiefly grown. Tomatoes were plentiful in summer, and unusually plentiful in early autumn, many farmers having planted extensive tracts under irrigation for a late crop in the hope of catching the remunerative autumn prices. Blight destroyed most of the plant in autumn, so that the supply of fresh late tomatoes was abruptly cut off towards the close of November. Water-melons were fairly abundant in summer, and summer and autumn melons were also comparatively cheap, but of rather poor quality.

20. Owing to this glut of vegetables, farmers in ever growing numbers are directing their attention to other crops for growing on irrigated land, and in fact more than half of our irrigable area, was under early winter potatoes. These are sown as early as the middle of July and the earlier crop begins to mature and finds its way to the market in the last fifteen days of October, when it is bound to secure very good prices. Unfortunately, in certain localities, as at Curmi, Ghain Rihana, Manicata, etc., irrigated lands are infested with the mole-cricket (Gryllotalpa gryllotalpa) which causes much havoc among vegetables and also on the tubers of the potato, gnawing them and rendering them unfit for use.

21. The area under Citrus trees has remained much the same for a number of years, but existing groves are carefully looked after and there is a growing demand for young orange-trees to replace dead, old or exhausted trees. Orange-trees and lemon-trees are also frequently planted in the yards or back-gardens of country houses, mostly for the use of the household. Last year's crop was a very good one, the yield being estimated at 179,720 dozen, but the local requirements were such that about 852,000 dozen of oranges and lemons imported chiefly from Sicily during the period April 1930 to March 1931, never failed to find a ready market, although at prices always markedly below that of the local produce. A few small consignments of oranges from Jaffa were found infested with the Red Scale (Chrysomphalus Aonidum) which does not exist in the Maltese Islands, and were refused admittance, but on the whole the imported fruit was very free from disease, and as was the case last year the great rush of export to Malta was made late in the season, when the fruit was too over-ripe to bear safely the overland transit from Sicily to Central Europe.

22. The area under other fruit trees is estimated at 2,830 acres with a total production of 162,984 cwts. of fruit, as against last year's total of 209,458 cwts. This year's total includes only about 90,000 cwts. of grapes equivalent to 57,600 cantars available for the press. These should have yielded about 72,000 barili of wine, equivalent to 684,000 Imp. gallons. This year's low production is due primarily to vicissitudes of weather, which brought about a deficient development of the bunches, but partly also to widespread attacks of Downy Vine-mildew towards the

close of spring. Spraying with Bordeaux mixture was resorted to on a large scale in both Islands, but unfortunately many vineyards were already infected with disease when the growers commenced treatment, which should be rather preventive than curative in character and scope.

23. Practically all the vineyards in Gozo destroyed by the Phylloxera have been reconstituted on American stock, and the reconstitution is now surpassing the rate of destruction. Besides many new vineyards are being planted on American stock, so that the acreage under vineyards is bound to undergo a considerable increase in the near future. In Malta, also the reconstitution of diseased vineyards is well in progress, and new vineyards are being planted on American stock. But the large vineyards at Kasam Barrani and Melleha which were destroyed by this pest years ago, are now used for other cultivations, the growers being unwilling or unable to bear the expense for reconstitution. The exertions of this Department in the propaganda for the reconstitution of vineyards on American stock is bearing good fruit at Imtahlep, Fiddien, Siggieui, Is-Santi & Burnahhala, where numerous vineyards have been reconstituted on American Vines, and some of them are already fruit-bearing. Besides the considerable quantity of rootlings raised by the growers themselves for their own use, the rootlings of American vines supplied by the Government Nurseries in Malta and Gozo during the last planting season reached a total of 178,537. The output from the Nurseries was sufficient to meet all demands, and a small quantity of rootlings was left over as a surplus for next year's distribution. On the 15th July a Commission appointed by the Italian Government to study the ways to improve the viticulture in Libia, on its way to Tripoli, paid also a visit to the Government Nurseries of American Vines at Tarxien and Boschetto. The Commission consisted of Prof. F. Paulsen, Director of the Nurseries of American Vines in Sicily, and a celebrated viticulturist of old standing, who, in 1921 at the request of the Malta Government, had inspected and reported on our newly established nurseries of American Vines, as well as on viticulture in Malta and Gozo, of Prof. Prosperi, Director of the School of Viticulture and Oenology at Velletri, and of Dr. D. Guzzini. The Commission, and Prof Paulsen in particular, expressed themselves highly pleased with the manner in which our nurseries are kept and stocked, the types of American vines under cultivation answering fully to our requirements in regard to our various types of calcareous soils. They were also very pleased to see that our mother-plants and rootlings are perfectly healthy and free from all trace of disease, and that the methods of cultivation are those which have given the best results in lands with the same soil and climate.

24. Neither our farmers, and I am afraid nor their betters are yet alive to the growing importance of viticulture as one of the principal branches of our agriculture. It is not difficult to predict that at a not distant future our agriculture will be based principally on animal industry and on viticulture, and it is greatly regretted that in neither direction is commensurate action being taken. The action hitherto taken in reference to the establishment of American-vine-nurseries in Malta and Gozo, is adequate for our requirements, but there has been no serious attempt at coordination and standardisation of our wine-industry, and therefore there has been no attempt to standardise the type of the vineyard, with a view to uniformity of quality of the grape and of the wine produced by it. This lack of uniformity of type, and the existence of many wine-makers working with primitive methods, result in the production of many types of wine, mostly of very inferior quality and hardly saleable. It is obvious, therefore, that an improvement in the organisation of the wine-industry would be the only effective incentive for the rational development of our viticulture.

25. As was the case last year, this year was on the whole rather unfavourable from the point of view of production, and was almost disastrous financially owing to the low market prices which in many cases were only sufficient to cover the overhead charges of production. The cost of labour remains also at a high level, and the persistent high rent value of the land is another contributory cause to the present critical state of affairs.

26. Leaflets in Maltese, viz: (1) "A Warning on the cultivation and sorting of Malta Potatoes for the Dutch markets", (2) on the diseases of Cumin, (3) on the

Cultivation of Tomatoes, were issued by the Department, and other leaflets were revised and reprinted for distribution.

27. The estimated acreage of the various crops in 1930-31, is given in Appendix "A", and the estimated production is shown in Appendix "B". The prices of agricultural produce during the year are given in Appendix "C"; and its wholesale value to the grower, calculated on the average market prices, which is estimated at a total of £759,054. 13. 9 is given in Appendix "D". The returns of livestock on the 31st December, 1930, as compared with those of the preceding year, are shown in Appendix "E".

28. There have been no returns of the number of holdings, which have not altered during the past year, with the same average of 3.91 acres of cultivated land for each holding.

29. At a conference held at the Palace on the 17th July, 1930, His Excellency the Governor proposed to bring over a gardening expert from Kew Gardens who has also a knowledge of the care of fruit-trees to introduce improvements in the Public Gardens and Plantations, the object being to improve the standard of work in the Public Gardens which were already an attraction to visitors and could be made much more so at a small expense. On the recommendation of Dr. A. W. Hill (now Sir A. W. Hill), Director of Kew Gardens, Mr. F. S. Sillitoe, M.B.E., who has been for a long term in charge of the gardens in Khartoum, was engaged on a temporary agreement. Mr. Sillitoe's duties were to advise generally as regards Public Gardens and Plantations in Malta; to advise as to the lay out and improvement of the Harper Area, and neighbourhood; and general advice as regards Nurseries and Plantations in Gozo.

30. At the instance of His Excellency the Governor, and through the good offices of the Rt. Honourable the Secretary of State for the Colonies, Mr. J. F. Blackshaw, Representative of the Animal Husbandry Division of the Ministry of Agriculture and Fisheries, came to Malta on the 16th November, on a month's visit of inspection, to advise on the spot on the conversion and equipment of the buildings of the Experimental Farm at Ghammieri, in connection with the improvement of local Animal Husbandry. Mr. Blackshaw was shown also the principal farming districts in Malta and Gozo, more particularly in reference to livestock, and all available information on the subject was placed at his disposal. In view of the urgency of substantial improvements in our animal husbandry, and of the vast importance of the matter in the economic life of both Islands, it is very desirable that early action be taken to carry into effect, at least, some of the suggestions put forward by Mr. Blackshaw, as well as by Mr. Potts on the occasion of his visit to Malta in January 1930.

"B" WORKING OF THE DEPARTMENT.

Experimental Farm.

31. The new Experimental Farm at Ghammieri, Marsa, is not yet in full working condition, owing to unavoidable delay in carrying out certain repairs and alterations in the farm buildings for the reception of farm animals, and also owing to delay in providing the necessary pumping plant for the purposes of irrigation, the natural resources as regards water for irrigation being fully adequate. It is hoped to provide and install the pumping engines within the current year. A tract of well-situated land of rocky nature with very shallow soil has been reclaimed and improved as first class cultivable land, and a range of frames has been provided for seed-beds and the rearing of seedings.

32. Early winter potatoes were sown under irrigation in August, viz: Up-to-Date, Champions, Triumph or Ceres, Ragis 6,002 and Sonnenragis. Up-to-Date and Champion gave the same good results as usual. Triumph or Ceres, a round yellow flesh variety of Dutch origin and of excellent table qualities, also proved quite satisfactory for a winter crop, being sufficiently resistant and producing a number of tubers of good marketable size. Ragis and Sonnenragis, two other Dutch potatoes very similar to King Edward VII, gave unsatisfactory results for the winter crop.

All winter potatoes have been thrice sprayed with Bordeaux mixture as a preventive against disease, and there was hardly any sign of blight on the foliage or on the tubers.

33. An area of about 4½ acres was sown with spring potatoes, chiefly Champion which gave very good results; 34 bags of seed (43½ cantars) yielding 170 cantars of exportable produce, besides about 45 cantars of seed of good size for the winter crop. These potatoes were irrigated partly once, and partly twice, and were among the finest plots of potatoes in the Island. They were also duly sprayed thrice with Bordeaux mixture, and as a result there was no trace of disease.

34. Besides the above, other spring potatoes were tried on a small scale, through the courtesy of Mr. A. Calascione, who presented this Department with about six rotolos of seed of each of the following seven varieties, for trial, viz :—

Arran Banner,
Healthy Champion Clark's Selected,
Healthy Champion, Henry's Selected,
Healthy Alpha,
Farmer,
Dunaverney,
Mr. Clark's seedling No. 14.

Arran Banner is an immune round, white flattish potato, with white flesh. It has proved very productive, six rotolos of seed, with ordinary cultivation, producing 140 rotolos of potatoes, mostly tubers of good commercial size and tubers reserved for seed.

Healthy Champion Clark's Selected and Healthy Champion Henry's Selected are two marvellous potatoes of the old Champion type. Vigorous, resistant to disease, quite free from leaf curl and mosaic disease, each plant produced numerous tubers of very fine size, with only a few tubers small enough to pass as of seed size, in each case six rotolos of seed thus produce about 160 rotolos of marketable potatoes.

The other sorts, viz: Healthy Alpha, Farmer's, Dunaverney, and Clark's Seedling No. 14 have not proved satisfactory from the point of view of production.

35. Straw-coloured Spanish onions were again grown for trial on a small scale. The many samples of seed imported direct from Spain and distributed to growers gave good result, and so did the small plot grown at the Experimental Farm. A further importation of seed will be made with a view to popularize the cultivation of this valuable variety which both as main crop onion and for its late keeping qualities presents advantages over the various sorts at present under cultivation. Exporters of onions are often at great pains to introduce into cultivation this or that other sort of onion which happens to command good market prices in the importing countries. Unfortunately these laudable efforts are too often abortive, the onion being particularly liable to variation from one country to another in regard to its earliness or its keeping quality. Both these qualities are closely associated with the nature of the soil and climate, often independently of cultural operations. Thus it happens, even in this small Island, that the same sort of onion which has very poor keeping qualities when grown in the central district, proves to be astonishingly long keeping when grown in the hilly localities of the western district close to the sea, and the fact cannot be ascribed to any difference in the matter of cultivation and treatment. The sample of "Scanderia" onion, a long-shaped yellowish-brown onion of Hungarian origin, as well as the sort known as Deiruth which were tried last year, will be tried again next season from seed produced locally during the current season, by the bulbs reserved from last year's crop. The object of this trial is the production of small onions of the right size and quality for pickling.

36. A fine plot of ground of whitish quality has been sown with long-stapled Upland Cotton, in order to ascertain the suitability of this cotton for this type of soil. The ground has been prepared for a dry-farmed crop, in the usual manner, and a part of the plot will be so farmed. However, another part of the same plot will be irrigated, in order to show the great superiority of development and production of an irrigated cotton crop, as compared with one which is merely dry-farmed. The method of growing cotton under irrigation has already given good results at Kammieh (Melleha), and the importance of extending the scope of irrigation to crops which are usually

dry-framed is obvious from the fact that confronted by the recurrent over-production of vegetables our farmers are often at a loss what other irrigated crop to grow, besides potatoes.

37. A further trial with Manitoba Wheat, (4th generation in Malta) was made on a small scale, with the object of ascertaining the results of acclimatization on this valuable strain of bread-making wheat. The year was not favourable to a heavy production of wheat, but in our case the yield was fairly satisfactory, and what is still more important beyond a little shrinkage of the grain due rather to local adverse condition, there was no appreciable sign of degeneration.

38. The Italian Wheats mentioned in last year's report, viz : Grano di Rieti selezionato, Rosso val d'Alona, Fucense tenero, Gentile rosso, and Cologna selezionato were tried again this year from seed saved from last year's crop. The results obtained were so far satisfactory, but two other sorts, viz : Precoce Ardito and Villa Gloria have been discarded, the grain having shown evident signs of incipient degeneration.

39. A plot of West Australian Standard White Hard Wheat gave fairly good results. Owing to this year's peculiar conditions the plants did not tiller properly, and the crop was deficient in straw. Owing to the same condition there was also some shrinkage in the grain, but its "hard" qualities remained unimpaired. The plant is stiff and therefore capable of resisting the wind, and the moderate development of foliage compensated by a full development of the ear, is another consideration in its favour. It also appears to offer a satisfactory resistance to drought and to disease.

40. The two other sorts of wheat grown at the Farm this year, were the "Susa" or "Macaroni" Wheat and the Australian "Dreadnought". Both sorts have been grown at the Farm for a number of years, and are now rapidly spreading in both Islands, their superior qualities being generally recognised. Both are hard wheats of great resistance and heavy production, giving a good yield even on comparatively poor soils. As for reasons of soil and climate, the soft or bread-making wheats are not expected ever to become popular with our farmers, these two sorts are particularly recommendable, for the local manufacture of paste, both of them, and especially the Susa or Macaroni Wheat producing paste which is in no way inferior to the best grades of paste imported from abroad.

41. Besides the vegetables mentioned in last year's report, viz : Globe Artichokes ; Early, Winter and Spring Cauliflowers ; local Cabbages, and Cabbage Quintal d'Alsace, Kohl-rabi, Brussels sprouts, Tomatoes, Lettuces, Carrots, Beets, Sweet Fennel, etc., the following were also introduced and submitted for trials, viz : Tomatoes Lucullus, Temprano grande, and De Gandia, Cauliflowers "All seasons" and "Conical of Vesuvius" ; Cabbage June Giant ; Broccoli "Azul de Santa Teresa", and "Morado de Navidad" ; French beans, "Saxa Stringless", "Sugar Pearl Perfection", Kohl Rabi "Giant Silver flesh", etc., long-podded ochro or gombo etc., and considerable quantity of seeds of vegetables produced on the farm was distributed free to the growers who had applied for them. Large quantities of seedlings of several sorts of Aubergines Tomatoes and Capsicums were also raised, under glass for early planting and the surplus was also distributed to growers.

42. The mule-getting breed of donkeys belonging to the Stud Farm include now eight jacks and seven jennies ; two jacks and one jenny having been foaled during the year, and two jennies have been disposed of on the advice of the Government Veterinary Surgeon. These animals are still stabled partly at the old Farm and partly at Boschetto, until the completion of the necessary alterations in the premises of the Ghammieri Farm.

Plant Pathology.

43. The report of the Plant Pathology is given in Appendix "F".

Gardens and Plantations.

44. The report of the Superintendent of Public Gardens is contained in Appendix "G".

EXPENDITURE.

45. The expenditure for the financial year 1930-31 amounts to £14,703. 8. 7 as hereunder detailed :—

A. Personal Emoluments

Annual Expenditure :

Office	£1,503	6	5
Experimental Farms	450	15	9
Gardens & Plantations	4,567	6	5
Plant Pathology	543	0	0
Viticulture	509	9	5
			£7,573 18 0

B. Other Charges :

Annual Expenditure :

Office	£	990	1	1 *
Experimental Farms		1,112	9	5
Gardens & Plantations		2,913	4	9
Plant Pathology		496	14	9
Viticulture		357	18	0
				£5,870 8 0
Extraordinary Expenditure				1,259 2 7
Total				£14,703 8 7

The expenditure in the preceding financial year amounted to £12.842. 17. 8.

REVENUE.

46. The amount of Revenue collected during the year was £1,878. 17. 3¾ as against £1,454. 3. 2¼ in 1929-30.

I have, etc.,

J. Borg,
Superintendent of Agriculture.

* Including £567. 10. 0 subsidies to the "Società Economico Agraria", Board of Agriculture for Gozo, Malta Horticultural Society, Malta Horse Show and for the encouragement of modern bee-keeping, and £44 as part contribution to the Imperial Bureau of Entomology, and £20 contribution to the Imperial Agricultural Bureau.

Appendix A.

Area of the various crops 1930-31.

	Locality	Nature of the crop and number of acres of land in each crop.													
		Wheat	Barley	Beans	Potatoes	Onions	Cumin	Citrus fruits	Other fruits	Vegetables	Cotton	Forages	Pasture	Total No. of acres in crop	No. of acres of uncultivated land
Valletta Dist.	Valletta	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Floriana	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Hamrun & Marsa ...	81	22	4	20	2	26	1	6	5	3	83	2	255	26
	Misida & Pietà ...	33	5	3	27	2	12	2	3	3	5	45	1	141	3
	Sliema	16	4	1	19	1	3	1	2	3	2	30	1	83	2
	St. Julians	68	12	3	31	1	19	2	8	2	2	73	2	223	10
Total Valletta District ...		198	43	11	97	6	60	6	19	13	12	231	6	702	41
East District	Senglea	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Cospicua	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Vittoriosa	—	1	—	3	—	—	—	2	2	—	4	—	12	3
	Zabbar & Calcara ...	118	158	121	225	72	105	3	28	172	6	283	23	1,314	49
	Zeitun	156	168	94	190	93	110	2	15	100	5	373	11	1,317	20
	Marsascirocco... ...	162	140	15	160	24	25	—	15	2	7	180	14	744	24
	Tarxien & Paula ...	148	162	20	75	63	92	3	34	10	7	257	3	874	12
	Luca	130	135	17	95	88	100	4	37	33	3	250	4	896	24
	Micabiba	110	36	4	80	11	16	2	65	2	5	106	8	445	18
	Krendi	165	80	5	98	11	22	2	44	1	8	186	20	642	90
	Zurrico & Safi ...	530	352	20	170	41	36	5	54	4	16	440	32	1,700	69
	Gudia & Chircop ...	177	168	22	102	96	94	2	32	15	4	248	18	978	42
	Birzebbugia	198	280	26	209	48	30	1	50	3	5	348	46	1,244	80
	Axiak	100	105	11	115	12	25	1	15	2	2	212	10	610	48
Total East District ...		1,994	1,785	355	1,522	559	655	25	391	346	68	2,887	189	10,776	479
Central District	Naxaro Central ...	385	98	8	142	5	92	3	40	15	12	445	20	1,265	400
	Birchircara and Sta. Venera	365	192	37	345	26	60	7	43	38	15	428	13	1,569	54
	Gargur...	225	62	3	56	3	60	1	34	6	2	234	22	708	240
	Musta	122	36	3	61	2	44	10	28	2	9	119	19	455	75
	Lia & Balzan... ...	114	26	9	121	6	25	29	19	10	5	87	—	451	5
	Attard	250	53	16	175	30	37	17	18	24	12	237	2	871	24
	Zebbug...	300	140	36	189	49	188	12	46	75	21	296	6	1,358	21
	Curmi	295	145	33	150	20	138	10	50	85	5	302	14	1,247	18
Total Central District ...		2,056	752	145	1,239	141	644	89	278	255	81	2,148	96	7.924	837
West District	Notabile	395	70	36	38	16	33	1	71	76	5	345	10	1,096	6
	Rabato...	855	310	75	118	138	56	6	306	275	9	750	20	2.918	345
	Dingli	198	98	27	38	56	11	2	88	110	—	224	23	875	210
	Siggieni	602	50	31	162	86	212	39	96	240	10	557	66	2,151	293
	Imgiar	698	243	15	221	10	202	1	182	18	6	524	98	2,218	172
	Melleha	700	150	48	132	15	12	2	123	185	18	800	43	2,228	220
	St. Paul's Bay ...	675	72	46	208	18	13	2	86	168	14	540	28	1,870	115
	Naxaro, West... ...	129	60	3	38	1	35	1	37	5	5	179	10	503	350
Total West District ...		4,252	1,053	281	955	340	574	54	989	1,077	67	3,919	298	1,3859	1,711
Total Mlata		8.500	3,633	792	3.813	1,046	1933	174	1,677	1,691	228	9,185	589	33,261	3,068
Gozo	Victoria (Gran Fontana)	133	196	47	20	1	76	1	123	25	43	209	6	880	24
	Kercem	43	425	32	—	3	26	1	72	3	33	261	10	909	37
	S. Lorenzo	108	154	24	—	—	10	—	24	2	24	197	11	554	27
	Garbo & Ghasri ...	96	452	26	—	—	35	—	43	5	54	253	16	980	106
	Zebbug...	160	495	37	10	2	10	2	102	12	65	433	12	1,340	25
	Xaghra...	107	328	42	18	2	9	5	158	24	12	278	32	1,015	38
	Nadur	92	245	52	12	2	1	4	338	52	2	185	45	1,030	58
	Kala	90	184	57	13	2	3	—	177	23	—	213	8	770	30
	Ghajnsielem & Comino	110	305	34	15	3	62	1	56	27	3	289	40	945	78
	Xeuchia	40	95	8	9	4	70	—	26	1	1	97	45	396	80
	Samat & Naxxar ...	123	250	42	24	6	12	—	34	25	34	296	98	944	94
Total, Gozo...		1,102	3.129	401	121	25	314	14	1,153	199	271	2,711	323	9,763	597
Grand total		9,602	6,762	1,193	3,934	1,071	2247	188	2,830	1.890	499	11,896	912	43,024	3.665

Appendix B.

Estimates of Agricultural Produce—1930-31.

	Locality	Nature of the produce and quantity of each										
		Wheat Quarters	Barley Quarters	Beans Quarters	Potatoes Tons	Onions Tons	Cumin-seed Cwts	Citrus fruits Dozen	Other fruits Cwts.	Vegetables Cwts.	Cotton Lint lbs.	Forages 'Soma' or load of 10 bundles
Valletta Dist.	Valletta	—	—	—	—	—	—	—	—	—	—	—
	Floriana	—	—	—	—	—	—	—	—	—	—	—
	Hamrun & Marsa	283	116	16	100	15	122	950	440	375	700	5,615
	Misida & Pietà	115	28	12	135	15	56	1,900	230	225	1,180	2,940
	Sliema	56	22	4	95	8	14	950	150	230	475	1,995
	St. Julians'	238	64	12	155	7	83	1,800	550	145	450	4,450
Total Valletta District		692	230	44	485	45	275	5,600	1,370	975	2,805	15,000
East District	Senglea	—	—	—	—	—	—	—	—	—	—	—
	Cospicua	—	—	—	—	—	—	—	—	—	—	—
	Vittoriosa	—	5	—	15	—	—	—	150	160	—	273
	Zabbar & Calcara	414	790	484	1,125	536	510	2,850	1,870	13,000	1,390	17,470
	Zeitun	546	840	376	950	696	495	1,900	1,000	7,560	1,150	22,330
	Marsascirocco	566	700	60	800	145	113	—	970	150	1,630	11,820
	Tarxien & Paola	518	810	80	375	464	420	2,900	2,230	780	1,650	16,650
	Luca	455	675	68	475	650	450	3,850	2,340	2,530	680	16,500
	Micabiba	385	180	16	400	81	72	1,800	4,420	150	1,060	6,430
	Krendi	577	400	20	490	80	100	1,900	3,000	75	3,600	11,490
	Zurrico & Safi	1,850	1,760	80	850	308	164	4,800	3,590	325	530	26,650
	Gudia & Chircop	619	840	88	510	720	434	1,950	2,050	1,050	1,200	17,000
	Birzebbugia	693	1,400	104	1,045	360	135	900	2,860	225	470	21,760
	Asciak	350	525	44	575	90	114	950	1,020	150	—	13,980
Total East District		6,973	8,925	1,420	7,610	4,130	3,007	23,800	25,500	26,155	13,760	183,353
Central District	Naxaro Central	1,348	520	26	730	37	435	4,650	2,655	1,125	2,800	28,940
	Birchircara and Sta. Venera	1,277	990	132	1,750	192	300	6,620	2,960	2,860	3,480	28,765
	Gargur	705	310	10	290	11	260	880	2,200	430	440	15,100
	Musta	428	190	11	315	15	208	9,300	1,770	150	2,120	7,740
	Lia & Balzan	400	140	34	625	44	118	28,225	1,320	770	1,180	4,875
	Attard	890	282	60	900	223	175	16,130	1,135	1,820	2,800	15,385
	Zebbug	1,100	720	136	965	361	890	11,390	3,070	5,580	4,920	20,050
	Curmi	1,045	746	125	770	143	650	9,500	3,503	6,350	1,160	20,650
Total Central District		7,193	3,898	534	6,345	1,026	3,036	86,695	18,613	19,085	18,900	141,505
West District	Notabile	1,465	385	141	190	112	181	948	3,760	5,446	1,170	22,415
	Rabato	3,250	1,730	303	590	966	308	5,680	16,150	19,507	2,125	49,145
	Dingli	553	562	103	194	392	60	1,950	4,520	7,805	—	14,940
	Siggieui	2,434	260	125	807	602	1,166	37,020	5,375	17,111	2,330	35,900
	Imgiar	2,715	1,350	52	831	70	1,111	955	9,430	1,293	1,400	31,630
	Melleha	2,832	783	187	664	105	66	1,930	7,190	13,140	4,100	50,765
	St. Paul's Bay	2,424	310	184	936	126	71	1,960	4,948	8,702	3,300	35,050
	Naxaro, West	318	350	13	162	7	192	945	2,265	365	1,180	12,140
Total West District		15,521	5,730	1,108	4,374	2,380	3,155	51,388	53,738	73,369	15,605	254,985
Total Malta		30,379	18,783	3,106	18,814	7,581	9,473	167,483	99,221	119,584	51,070	594,843
Gozo	Victoria (Gran Fontana)	532	1,004	165	120	6	350	950	6,580	1,750	10,300	13,560
	Kercem	190	2,160	132	—	19	116	947	4,255	218	7,900	16,922
	S. Lorenzo	410	723	101	—	—	42	—	1,405	146	5,750	12,939
	Garbo & Ghasri	350	2,210	112	—	—	158	—	2,714	336	14,080	16,342
	Zebbug	590	2,394	167	58	13	45	965	6,064	812	15,600	27,904
	Xaghra	415	1,631	175	112	12	40	4,660	8,780	1,650	2,900	18,094
	Nadur	370	1,214	225	75	12	5	3,780	17,395	3,596	480	12,062
	Kala	365	915	244	76	11	12	—	9,654	1,570	—	13,902
	Ghainsielem & Comino	420	1,551	152	87	18	270	936	3,375	1,825	700	18,680
	Xeuchia	150	471	37	52	26	314	—	1,478	70	240	6,292
	Sannat & Munxiar	470	1,195	148	141	38	55	—	2,063	1,698	8,200	19,207
Total, Gozo		4,262	15,468	1,658	721	155	1,407	12,238	63,763	13,681	66,180	175,904
Grand total		34,641	34,251	4,764	19,535	7,736	10,880	179,721	162,984	133,265	117,250	770,747

Appendix C.

Prices of Agricultural Produce during 1930-31.

	£ s. d.		£ s. d.	
Wheat	2 0 0	to	2 5 0	per quarter.
Barley	0 19 2	„	1 2 6	do.
"Mischiato"	1 5 0	„	1 15 0	do.
Beans	1 10 0	„	2 0 0	do.
Peas	4 0 0	„	— — —	do.
Common Vetch	2 0 0	„	2 2 6	do.
Chickling Vetch	2 0 0	„	2 2 6	do.
Bitter Vetch	2 0 0	„	2 10 0	do.
Spring and Summer Potatoes ...	6 0 0	„	12 16 0	per ton.
Winter Potatoes	3 4 0	„	10 18 0	do.
Onions	2 11 6	„	5 3 0	do.
Cumin	1 8 10	„	1 15 6	per cwt.
Citrus fruits	0 0 6	„	0 0 8	per dozen
Grapes	0 8 6	„	0 10 0	per cwt.
Figs (fresh)	0 3 0	„	0 5 6	do.
Prickly pears	0 2 6	„	0 4 6	do.
Other fruits	0 7 0	„	0 9 0	do.
Vegetables	0 2 0	„	0 8 9	do.
Cotton	0 0 4	„	0 0 4¼	per lb.
Forages	0 3 0	„	0 4 9	per load of 10 bundles.
Wheat-straw	0 4 0	„	0 4 4	per net.
Barley-straw	0 1 1	„	0 1 3	per load of 10 bundles.
Firewood, thick	0 8 0	„	0 8 6	per pesata of 300 rotoli.
Firewood, in bundles	0 2 6	„	0 3 0	per load of 10 bundles.
Goat's milk	0 1 10	„	0 2 0	per gallon.
Cow's milk	0 3 3	„	— — —	do.
Wine (common)	0 1 8½	„	0 2 1	do.
Cheese	0 1 1	„	0 1 2	per lb.
Cheese, fresh	0 0 5	„	0 0 6	do.
Wool	0 1 8	„	— — —	do.
Beef	0 0 10½	„	0 1 1	do.
Pork	0 0 10	„	0 1 0	do.
Mutton	0 0 9½	„	0 0 10¼	do.
Lamb	0 0 9½	„	0 0 10¼	do.
Eggs	0 0 7	„	0 2 0	per dozen.
Poultry	0 5 0	„	0 6 0	per head
Rabbits	0 1 6	„	0 2 6	do.

Appendix D.

Estimated value of Agricultural Produce grown in these Islands during 1930-31.

			£ s. d.		£ s. d.
Wheat	34,641 qrs.	at	2 1 8	=	72,068 17 0
Meslin or Mischiato)	15,370 „	„	1 10 0	=	23,055 0 0
Barley	18,881 „	„	1 0 0	=	18,881 0 0
Straw (Wheat and Meslin)	310,110 "nets"	„	0 4 2	=	64,606 5 0
Straw (Barley)	151,110 "some"	„	0 1 3	=	9,444 7 6
Beans	4,764 qrs.	„	1 15 0	=	8,337 0 0
Potatoes (Winter)	10,353 tons	„	6 8 0	=	66,259 4 0
Potatoes (Spring and Summer) ...	19,535 „	„	8 0 0	=	156,280 0 0
Onions	7,736 „	„	3 16 0	=	29,396 16 0
Cumin	10,880 cwts.	„	1 10 0	=	16,320 0 0
Citrus fruits	179,720 dozen	„	0 0 7	=	5,241 16 8
Grapes	90,000 cwts.	„	0 9 0	=	40,500 0 0
Other fruits	72,984 „	„	0 7 0	=	25,544 8 0
Cotton (lint)	117,250 lbs.	„	0 0 4¼	=	2,076 6 0
Cotton seed	2,707 cwts.	„	0 9 0	=	1,218 3 0
Vegetables	133,265 „	„	0 6 6	=	43,311 2 0
Forages...	770,747 "some"	„	0 4 3	=	159,617 1 1
Maize	1,080 qrs.	„	2 5 0	=	2,430 0 0
Melons and Water melons	25,913 cwts.	„	0 7 6	=	9,717 7 6
Prunings	38,000 "some"	„	0 2 6	=	4,750 0 0
		Total ...		...	£ 759,054 13 9

APPENDIX E.

The Police returns of livestock on the 31st. December, 1930, as compared with the returns on the 31st. December, 1929, are given in the subjoined table :—

Livestock	31st. December, 1930			31st. December, 1929		
	Malta	Gozo	Total	Malta	Gozo	Total
Cattle:—						
Maltese breed ...	1,958	727	2,685	2,018	458	2,476
Foreign breeds ...	1,186	490	1,676	1,399	554	1,953
Ovines:—						
Goats	20,138	8 774	28,912	22,329	5,695	28,024
Sheep	10,468	6,536	17,004	11,116	6,078	17,194
Pigs	3,907	2,685	6,592	3,720	1,619	5,339
Donkeys:—						
Maltese breed ...	109	33	142	105	30	135
Foreign breeds ...	2,794	1,678	4,472	2,821	1,140	3,961
Horses	2,772	282	3,054	2,652	246	2,898
Mules	2,237	483	2,720	2,256	456	2,712

APPENDIX F.

OFFICE OF AGRICULTURE—MALTA,
Valletta, 29th July, 1931.

Sir,

I have the honour to submit the following report on the work done in connection with the phyto-pathological service during the year 1930-31.

IMPORTS SUBJECT TO PHYTO-PATHOLOGICAL RESTRICTIONS.

2. During the year under review there were 870 consignments of live-plants or agricultural produce subject to phyto-pathological restrictions. These imports consisted of Citrus fruit, potatoes, onions, garlic, ornamental and fruit trees, shrubs, and flowering bulbs.

3. Citrus fruits were imported from Sicily, Calabria, Tunis, Jaffa and Jamaica. These consignments included:

Oranges	755,192	dozen.
Lemons	92,904	„
Mandarins	3,210	„
Grape fruits...	525	„

4. Potatoes were imported from the North of Ireland, Italy, Austria, Belgium, Holland and Germany. The consignments of potatoes imported from the North of Ireland totalled 3,304,738 Kgs., and were used exclusively for seed purposes, while those imported from other countries were used for consumption. There was a great improvement in the quality of the potatoes imported this year for seed purposes owing mainly to the measures adopted by the Government of the North of Ireland to enable the Belfast exporters to meet the Regulations issued under "The (Malta) Potato Export Industry (Emergency) Ordinance" of 1930".

5. Onions were imported from Alexandria, garlic from Sicily and a few parcels of ornamental and fruit trees and shrubs, bulbs and vegetable soil were imported from Italy, Holland, Luxemburg and the British Isles. Six parcels of bulbs and flowering plants imported from France and the United States of North America and one sample parcel of potatoes from Bone were seized and destroyed in accordance with Government Notice No. 175 of the 28th July, 1923.

The Superintendent of Agriculture.

EXPORTS FOR WHICH PHYTO-PATHOLOGICAL CERTIFICATES HAVE BEEN ISSUED BY THIS DEPARTMENT.

6. Certificates of origin, quality or freedom from plant diseases and pests were issued by this Department for 423 consignments of agricultural produce. The consignments consisted of potatoes for Germany, Austria, Switzerland, Ceylon, Tunis and Great Britain, onions for England and Tunis, cumin seed for Holland and the Argentine Republic, and a few parcels of ornamental plants for France, Italy and the United Kingdom. There is a reduction in the number of these consignments, compared with last year's, owing to the fact that this year spring potatoes were not exported before the end of March.

DEPARTMENTAL ACTIVITIES IN THE FIELD.

7. This year there was a virulent outbreak of Aphides which attacked several cultivated crops, fruit-trees and ornamental shrubs. Seed-beds of the cabbage-tribe suffered heavily from severe attacks of *Aphis brassicae* associated with *Haltica oleracea*, *Phyllotreta nemorum* and *Aleurodes brassicae*. These seed-beds had to be sprayed repeatedly with Katakilla under the direct supervision of this Department before the pests could be brought under control.

8. Broad beans suffer more or less every year from *Aphis rumicis*, which owing to its cosmopolitan character and particular relish for thistles is omnipresent in these Islands. The practice usually followed by our growers of topping the plants soon after inflorescence, to help the formation of large pods, checks successfully the ever increasing numbers of these Aphides by depriving them of the more tender and succulent portions of the plant.

9. Citrus trees were rather more mildly affected than last year, with *Toxoptera aurantii*, but, Roses, Oleanders, Chrysanthemums and many other shrubs of the ornamental garden were badly infested in many parts of the Island.

10. The most efficient natural enemies of these pests are the ladybirds, among which *Chilocorus bipustulatus*, *Exochomus quatripustulatus*, *Adalia bipunctata*, *Coccinella 7-punctata* and *Coccinella 11-punctata* are the most important and mainly responsible for their proper control. These ladybirds often come over the sea in large numbers during the month of March and then spread from field to field. Of course they also hybernate in these Islands and the adult insects can be found during the winter months taking shelter in the crevices of the bark of trees, particularly of the Carob-tree, and under stones on walls, but it does not appear that they multiply in sufficient numbers, early enough, to check the first infestations of the Aphides, which are rapidly disseminated by ants, winds, birds and other agencies.

11. The Woolly Aphis, *Schizoneura lanigera*, has now been practically stamped out of Mtahleb and Bahria, where three or four years ago its ravages were rapidly destroying the apple-trees of the orchards in these localities. Only two or three centres of a very mild infection by the pest could be detected last spring, and these were probably not a residual of the old infections but fresh importations of the pest along with the young Apple-trees with which the growers are replacing the old trees or extending their orchards. In order to check the development of this outbreak, during the winter, about 7,000 trees were treated, as was done last year, with a Potassium permanganate spray, $2^0/_{00}$, to the branches and the partly exposed roots, and with injections of carbon bisulphide in the soil.

12. The systematic treatment for the Armoured Scales with Potassium sulphocarbonate spray $5^0/_{00}$ or Potassium permanganate spray $2^0/_{00}$, carried out in the more important orange groves in both Islands during the last few years, was continued last summer with the same good results. About 6,000 Citrus trees and 1,000 fruit or ornamental trees were submitted to this treatment during the spring and summer. The Mulberry scale, *Aulacaspis pentagona*, is now only occasionally met with on mulberry and stone-fruit trees, and many orange groves are practically free from *Chrysomphalus dictyospermi*, while there is also a great reduction in the number of trees badly infested with *Parlatoria Lucasi* and *Mytilaspis citricola*. However, in the nurseries of Citrus trees, *Chrysomphalus* has proved more difficult to control without damaging the young grafflings.

13. This year there were very few outbreaks of the Fluted Scale-Insect, *Icerya purchasi*, and during the summer only 26 requests for colonies of its natural enemy, the ladybird *Novius cardinalis*, were made at this Office. The Australian ladybird is now thoroughly naturalized in these Islands, and keeps the pest very efficiently in check. The few outbreaks reported to this Department, on examination, proved to be already under the control of the ladybird.

14. It was expected that the severe storms experienced last winter would jeopardize the colonies of Novius established in the open during the last four or five years, but in spite of the heavy losses which these colonies have undoubtedly sustained, the beneficial insect reappeared in sufficiently large numbers in Spring to resume unaided its useful work.

15. Last summer, *Phylloxera vastatrix*, appeared less virulent than usual on the mother plants of the American-Vine-Nurseries, and no vines were reported dead from the still unreconstituted vine-yards known to be infested by the pest. There was, however, a new centre of infection at Mistra in a vineyard which so far had remained free from this pest, although all the country round has been infested for some years and most of the vineyards have already been reconstituted on American vines. About 24 tummoli of land in this vineyard were treated with injections of carbon bisulphide to check the ravages of the pest and enable the owner to carry out by degrees its reconstitution on American stock.

16. The European Fruit Fly, *Ceratitis capitata*, appeared in unusual numbers last year and growers of stone-fruit trees sustained heavy losses from its attacks. Traps with arsenicated syrups were tried without success. The treatment devised by this Department and consisting in the injection of carbon bisulphide in the soil with a Pal Injector to kill the pest while pupating, was applied two or three times during the summer and autumn, in the more important Citrus groves of the Island. The good results obtained by this treatment last year and the year before were again experienced this year, but as already stated in previous reports, this treatment is only a temporary and very uncertain remedy, as fresh arrivals of the pest keep pouring in the treated groves from all directions until wet weather sets in, and the cold and the rain put an end to the activities of the pernicious insect. *Opius humilis*, Silv. the parasite of the Mediterranean Fruit Fly, has not yet been imported into these Islands.

17. Potato blight, *Phytophthora infestans*, appeared early on the winter crop of potatoes as well as on the spring crop, but preventive treatment with Bordeaux Mixture, aided in both cases by a long spell of fine, dry weather, checked the disease and the two crops were exceptionally healthy. The help which is usually given to farmers by this Department to protect this important crop was extended also this year and about 1,000 tummoli of land under cultivation with potatoes were sprayed once or twice under Government supervision.

18. The Downy Mildew of the vine, *Plasmopara vitiuola*, and the Powdery Mildew, *Oidium Tucheri*, appeared late in the season, when the berries had already formed. *Oidium* was rather virulent and caused some damage. In response to requests from growers, about 700 tummoli of vineyards were treated with Bordeaux Mixture and powdered sulphur, twice or three times under the supervision of this Department.

19. Owing to the exceptionally dry weather which prevailed throughout the whole season, fungous diseases were not conspicuous during the year, and did not cause appreciable damage.

TECHNICAL INSTRUCTION TO FARMERS AND GROWERS.

20. During the year, technical instruction, often associated with a practical demonstration or with direct treatment for plant diseases and pests was given to 2,543 farmers or growers at their own farm or residence. These included :—

203 farmers who received direct help and chemicals for the treatment of seed-beds of the cabbage tribe and tomatoes.

378 growers who received advice or demonstration and often chemicals and direct help for the treatment of fruit-trees, cucurbitaceous plants, the cumin seed plant and other crops for aphides and various caterpillars and cryptogamic diseases.

214 growers who received direct help in the treatment of orchards and citrus groves for scale-insects and the European Fruit Fly.

522 growers who received assistance in the treatment of vines for mildews.
1164 farmers who received assistance in the treatment of potatoes for blight, and
62 growers who received free treatment of apple-trees for the Woolly Aphis.

21. These lessons included the preparations of normal Bordeaux Mixture and sprays with liver of sulphur, Katakilla, Nicotine, tar preparations, Potassium permanganate, lime and other chemicals.

22. A new leaflet in Maltese entitled "Diseases of the Cumin Seed Plant" was published and circulated by this Department among farmers, while several former leaflets were reprinted for circulation.

ISSUE OF CERTIFICATES AND INSPECTION WORK.

23. During the year the number of certificates issued by this Department included:—
552 certificates of release for agricultural produce imported from abroad, and
423 phyto-pathological certificates and certificates of origin for agricultural produce exported from these Islands.

24. In connection with the issue of these certificates and the Departmental activities in the field, 779 inspections were made at the Marsa or in the Custom's warehouses or in private stores and 158 inspections were made in farms, private gardens and public plantations.

I have etc.

P. Borg,
Plant Pathologist.

Appendix G.

Office of Public Gardens.
San Antonio, 29th, July, 1931.

Sir,

I have the honour to submit the Annual Report on the Public Gardens, Plantations and Nurseries for the year 1930-31.

San Antonio Public Gardens.

2. During the year, 18 ornamental trees, 41 shrubs, 45 roses and 40 creepers were added, and 36 citrus trees were planted out during the summer months. Six shrubs, 33 roses and 8 citrus trees were transplanted to other parts of the Gardens, and 12 ornamental trees, 21 shrubs, 24 roses, 5 creepers and 38 citrus trees were removed.

3. The number of oranges, lemons etc., obtained from the gardens was about 7800 dozen, which were sold by contract for £253. Other proceeds from the sale of fruits, plants, flowers and firewood amounted to £44. 7. 8d., making a total of £297. 7. 8d. the total proceeds last year was £355. 1. 6.

4. This year's main feature in these gardens was the extensive collection of Tulips and Iris. 6000 Darwin Tulips and 2600 Dutch Iris were ordered in good time from Messrs. C. G. Tubergen Ltd., of Holland. The ground to receive the bulbs was well prepared during the summer. The bulbs were received and planted out at the end of September, and made a magnificent display early in Spring.

5. Two plots of ground in the central part of the gardens were cleared of trees and planted with grass.

6. Three glaze-roofed plant shelters were erected on the north side of the gardens by the Public Works Department. They are substantially built, of neat design, and are well adapted for the purpose required. Three propagating frames with hand lights have been also constructed by the Public Works Department, and alterations were made in the large green-house; the iron frame-work along the whole front of the house was replaced by wooden frames. Other works carried out this year consisted of three sheds—one for manure and leaf mould, one for pots and another for the gardeners' bycicles, and a potting bench.

7. The attendance of the public was satisfactory, especially during holiday time. The number of tourists who visited the gardens was about 10,000.

8. Many inquiries on horticultural matters were attended to both personally or by correspondence.

9. Thirty-two lectures on floriculture and arboriculture were delivered by the Superintendent to Apprentice Gardeners employed in the Public Gardens. Private gardeners who may wish to avail themselves of this opportunity have also access to these lectures.

Boschetto Public Gardens.

10. 99 fruit trees. 900 American vine rootlings and 16 grafted vines were added during the year.

11. Among the fruit trees added this year were the following kinds imported from Spain:—

Apricots: Amoscatelado, Del Patriarca, Louis Granel, San Fernando, Temprano de Murcia, Hatif du Clos.

Almonds: Desmayo, Mollar de la Princesa.

Cherries: Blanca Gruesa de Provenza, De la Piedra, Garrafal de Lerida, Tempranilla.

Plums: Coe's Golden Drop, Fraile del Pais, Monstruosa de Inglaterra, Reina Claudia Verde, Reina Claudia Diafana, Reina Claudia D'Oullius.

Japanese Plums: Burbank, Ogden.

Kaki or Persimon: Acclimatacion, Tiodemon, Gailey.

Figs: Blanca Temprana, Cuello de Dama Blanca, Cuello de Dama Negra, Higo Rey, Sangre de Caballo, De Fraya.

Apples: Blanca de Espana, Borovitsky, Calvilla Colorada d'Aujou, Calvilla de San Salvador, Dolceta o Serena, De San Juan, Gran Alejandro, Reinetta d'Aujou, Reinetta de Cuzy, Rapenaldos, San Roqueras, Canuesa Castellana de Daroca, Canuesa Castellana de Vetasso, Canuesa fina encarnada, Canuesa Real, Early Victoria, Regalo del General, Trasparente de Cronels.

Walnut: De Cortesa Blanca o Mesange.

Pears: Andrè Desportes, Beurre Giffard, Beurre Hardy, Bon Chretien Williams, Buena Luisa de Avranches, Tendral de Valencia, Triomphe de Jodoigne.

Vines (grafted on Berlandieri X Riparia 420 A): Negra larga temprana, Moscatel de Valencia, Rosatei, Royal Negro, Sin Pepita, Jijona Blanca, Jijona Negra, Planta Blanca, Royal Tardio.

12. The number of oranges, lemons, etc., obtained from the Gardens was about 12500 dozen, which were sold by contract for £145. 7. 6d. The crop of figs and grapes was also sold by contract for £91. 15s., and that of loquats was £47 (of which £20. 6. 8d are for the 1931-32 crop; this amount having been paid at the end of the financial year under review). Other proceeds from the sale of fruits, firewood, etc., amounted to £117. 15. 7d., making a total of £401. 18. 1d. A further sum of £5. 3. 6d. has been obtained from the sale of potatoes. The total sum collected last year was £277. 0. 4d.

13. The Gardens continue to be the favourite resort of holiday-makers, and was visited by large crowds of people on Sundays and holidays, and also during other days of the week.

San Antonio and Verdala Private Gardens.

14. Forty shrubs have been added during the year, and 18 orange trees, 14 Pine tres and 6 shrubs replaced. One of the four large Araucarias in San Antonio Private Garden, about 85 years old, over 100 ft. high, and with a trunk over three feet and a half in diameter was removed.

Other Gardens.

15. Seventeen ornamental trees, 56 shrubs and 24 creepers have been added, and 17 ornamental trees and 35 shrubs replaced in the following gardens: Upper Barracca, Hastings and St. Michael's Bastion, Maglio, Argotti, Piazza Miratore. Sa Maison, Rundle, Blata-il-Baida, Gzira, Notabile Esplanade and Luca Briffa.

Calcara Gardens.

16. A new garden has been laid out by the Public Works Department in the Harper Area along the Calcara Bastion, close by the Duke of York Avenue. In these gardens 90 trees, 38 shrubs and 18 creepers have been planted, and two lawns have been made planted with couch grass (cynodon Dactylon).

Public Plantations.

17. During the year, 760 trees, 301 shrubs, 118 citrus trees and 4 creepers were added to the plantations along roads and open spaces in Malta, and 377 trees and 17 shrubs replaced.

18. The following is a detailed list of the new plantations :—

Locality	No. of trees	Kind of trees.
Wied il Ghasel l/o Musta	100	Mulberry trees
St. Anne Curtain to Portes des Bombes	30	Oleander ,,
do. do. ..	11	Cercis ,,
do. do. ...	132	Ficus ,,
do. do. ...	30	Oleander shrubs
do. do. ...	11	Tamarix ,,
St. Anne's Curtain...	118	Citrus ,,
Outside Portes des Bombes	51	Oak trees
Piazza Fosse, Floriana	41	Ficus ,,
Siggieui to Micabiba Road	34	Pine ,,
Luca to Zurrico Road	11	,, ,,
Harper Area New Road	130	Ficus ,,
Ix-xghara ll Cbira, Melleha	30	Melia ,,
do. do.	30	Ailanthus ,,
Notary Zarb Street, Attard	39	Pine ,,
do. do.	74	Oleander ,,
do. do.	38	Ficus ,,
do. do.	4	Creepers
Via Valletta, Notabile	6	Pine ,,
Fiddien, l/o Rabato	9	Pecau ,,
do. do.	10	Olive ,,
Grenfell's Drive	260	Agave.

Public Nurseries, Malta.

19. The Nurseries of Victoria Gate, Valletta; St. Philip's, Floriana; Tax-Xeuc, (near the Addolorata Cemetery); San Antonio, Attard; Tal Cmand, Lia; and St. Paul's, Rabato are well stocked with trees, shrubs and seedlings. Besides meeting the requirements of the Public Gardens and Plantations, 42 fruit trees and 136 ornamental trees have been also supplied to private growers.

20. The amount collected from the sale of trees, firewood etc., from the Public Plantations and Nurseries was £ 75. 17. 3¼d as against £ 81. 7. 6¼d last year.

Villa Rundle and Public Plantations, Gozo.

21. During the year 17 ornamental trees and 22 shrubs were added to Villa Rundle, and 10 ornamental trees and 16 shrubs replaced.

22. The number of trees added to the public plantations along roads and open spaces was 199, and the number of trees replaced was 117.

23. The following is a detailed list of the new plantations in Gozo :—

Locality.	No. of trees.	Kind of trees
Via Xlendi—Fontana	14	Mulberry trees
do. do.	10	Poplar „
Ta Gifna Valley—Kercem	9	Mulberry „
Via Feudo San Giorgio—Kercem ...	18	„ „
do. do. do. ...	22	Olive „
Via Kala—Xeuchia	15	Mulberry „
"Ta Lort"—Migiarro	1	Oleander „
Via Migiarro—Kala	1	Araucaria „
Marsalforno, Via Kbaijar	47	Tamarix „
Marsalforno Valley	41	Mulberry „
do. do.	9	Ask „
Ghadi ta San Raflu	8	Popolar „
do. do.	4	Ash „

24. 120 fruit trees have been supplied from tal Hleuua Nursery, Kercem, to private growers, and 320 scions of peaches nectarines, plums and other fruit trees were distributed in response to applications. This shows that an increased interest is being taken by private growers in the cultivation of fruit trees.

American Vine Nurseries.

25. The re-establishment of vineyards in Gozo, by the use of resistant stocks as graft-bearers, has made great progress, and phylloxera is now well under control. In Malta the spread of phylloxera is now seriously felt, and the demand for American vines is on the increase. All necessary steps have been taken by the Department to meet the demand and a still larger quantity of American vine rootling will be available next year and subsequent years, as to enable vine growers in Malta to re-construct their devastated vineyards, as has been done at Gozo.

26. Vine growers now realize that the only way to successfully combat phylloxera is to re-establish the vineyards on resistant stocks. The assistance of a vine to the phylloxera, or rather its ability to withstand the attacks of the insect without serious injury, is influenced generally by the adaptability of the vine to the climate and soil conditions in which it is grown. These either increase or diminish the vigour of the plant and retard or favour the separation of the insect injuries. The soil and climate may also affect the resistance by favouring or hindering the approach, dissemination or activity of the insect. The American vines introduced by the Department of Agriculture showed remarkable adaptability to the local conditions of soil and climate.

27. The following is a brief description of their suitability to the various kinds of local soil:—

Berlandieri × Riparia 420A. For any kind of soil, does better than other sorts on good red soils, and on deep soils, as well as on soils with broken rocky subsoil.

Berlandieri × Riparia 157-11. As Ber. × Rip. 420A, but especially suitable for deep moist soils of whatever nature.

Berlandieri × Riparia, 34E. As Ber. × Rip. 420A, but not recommendable for soils of poor quality, especially whitish soils.

Chasselas × Berlandieri 41B. For all soils like Ber. × Rip. 420A, but especially recommendable for dry or very whitish soils.

Rupestris du Lor. Thrives on all soils, provided they are deep and rather moist, especially for clayey soils deeply trenched. Not suitable for dry soils, or shallow soils, or whitish soils.

28. The American Vine Nurseries at Malta and Gozo, now consist of 18024 vines grown as mother-plants.

29. The number of cuttings planted this season in the American Vine Nurseries was about 276900. Grafting by the whip and tongue method has been made also this year, and a total of 3000 cuttings have been grafted by this method. 3000 plants similarly grafted, left from last year's stock, are also available.

30. The following is a delailed list of the number of rootlings etc. supplied in Malta and Gozo, either on payment at greatly reduced rates, or free of charge, for experimental purposes ;—

Malta.	
Rootlings furnished on payment	20575
„ given free of charge	25
Grafted vines furnished on payment	1125
„ „ given free of charge	12
Gozo.	
Rootlings furnished on payment	156800
Total Rootlings and Graftlings	178537

31. The amount realised from the sale of American vines totalled £ 182. 8. 11½d. viz: Malta £ 28. 19. 7 and Gozo £ 153. 9. 4½d. against a total of £ 172. 12. 10. collected in 1929-30.

32. During the year, 160 practical lessons in Viticulture were given to vine growers by the Instructor in Viticulture for Malta, at Melleha, Fiddien, Hemsia, Kleija, Siggieui, Ta Bria, Ghirghenti, Fauuara, Diar il Bakar, Wardia, Bahria, Dingli, Ghain Tuffieha, Imtahlep, Is-Santi, Rabato, and 550 practical lessons on the same subject were given during the same period by the Instructor in Viticulture for Gozo, to vine growers, at the Villa Rundle Vine Nursery, Victoria.

I have, etc.

JOHN BRIFFA,
Superintendent of Public Gardens
and Plantations.